AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with deleted material crossed out and new material underlined to show the changes made.

Claims 1-5 (Canceled)

6. (Currently Amended) A method of defining global routes for nets in an arbitrary region of a circuit layout, wherein each net has a set of pins, the method comprising:

a) using a first set of lines to measure length of the global routes;

b) using a second set of lines to measure congestion of the global routes;

c) using a third set of lines to partition the arbitrary region into a first set of sub-regions; and

d) for each net, identifying a global route that connects a group of first-set sub-regions that contain the net's set of pins, wherein each of at least a plurality of global routes is not collinear with segments of said first, second, and third sets of lines.

7. (Original) The method of claim 6, wherein the second and third sets of lines are identical.

8. (Currently Amended) A method of defining global routes for nets in an arbitrary region of a circuit layout, wherein each net has a set of pins, the method comprising:

a) using a first set of intersecting lines to measure length of the global routes, wherein the first set of lines defines a first set of sub-regions within the arbitrary region of a circuit layout;

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b) using a second set of intersecting lines to measure congestion of the global routes;

c) for each net, identifying a global route that connects a group of first-set sub-regions that contain the net's set of pins; wherein each global route has a set of route segments, wherein each of at least a plurality of the global routes intersects with lines of said first and second sets of lines and does not have any segment that is collinear with the first and second sets of lines, and each route segment connects two sub-regions in the first set of sub-regions.

9. (Currently Amended) The method of claim 8, further comprising measuring the length of each global route by summing the length of each global route segment in the global route's set of route segments.

10. (Previously Presented) The method of claim 9, wherein using the second set of lines comprises measuring the congestion of the global routes across the second set of lines.

11. (Previously Presented) The method of claim 10, wherein the second set of lines define a plurality of congestion edges, wherein measuring the congestion of the global routes comprises measuring the congestion of routes across the congestion edges.

12. (Previously Presented) The method of claim 11, further comprising:

once a global route is completed, specifying each global route only with respect to the global route's segments that cross the congestion edges.

13. (Currently Amended) The method of claim 8, wherein identifying the global route for each net comprises:

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starting at a first-set sub-region that contains a pin of the net, successively specifying a route segment that expands the global route into a new first-set sub-region until the global route connects all the group of sub-regions that contain the net's pins.

14. (Previously Presented) The method of claim 13, further comprising:

at each expansion of a global route segment, computing a length cost;

for each expansion of a global route segment across a second-set line, computing a congestion cost based on the congestion of the second-set line.

15. (Previously Presented) The method of claim 13,

wherein specifying a first global route segment comprises examining a plurality of potential global route-segment expansions;

wherein for each potential global route-segment expansion, computing a length cost;

wherein if the potential global route-segment expansion intersects a second-set line, computing a congestion cost based on the congestion of the second-set line.

Claims 16-20 (Canceled).

21. (Currently Amended) A computer program embedded in a computer readable medium, the computer program for defining global routes for nets in an arbitrary region of a circuit layout, the computer program comprising sets of instructions for:

using a first set of lines to measure length of the global routes;

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using a second set of lines to measure congestion of the global routes;

using a third set of lines to partition the arbitrary region into a first set of sub-regions; and

identifying for each net, a global route that connects a group of first-set sub-regions that contain the net's set of pins wherein each of at least a plurality of said global routes is not collinear with segments of said first, second, and third sets of lines.

22. (Currently Amended) A computer program embedded in a computer readable medium, the computer program for defining global routes for nets in an arbitrary region of a circuit layout, the computer program comprising sets of instructions for:

using a first set of intersecting lines to measure length of the global routes, wherein the first set of lines defines a first set of sub-regions within the arbitrary region of a circuit layout;

using a second set of intersecting lines to measure congestion of the global routes; and

identifying for each net, a global route that connects a group of first-set sub-regions that contain the net's set of pins; wherein each global route has a set of global route segments, wherein each of at least a plurality of the global routes intersects with lines of said first and second sets of lines and does not have any segment that is collinear with the first and second sets of lines, and each global route segment connects two sub-regions in the first set of sub-regions.

Claims 23-27 (Canceled).

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